GEOGRAPHIC SCHOOL BULLETINS

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Ernest B. Schoedsack

WHEN A SUDANESE CHIEFTAIN MOVES, HE LOADS HIS HOUSEHOLD ON AN OX

Rugs, pillows, pots, one of his wives, and a lot of purely ornamental tassels, bells, and fringes almost hide the animal. Ordinarily the turbaned Nazir would be on horseback, as he is a chief of the Messeria, a "horse tribe" of Kordofan Province in the Anglo-Egyptian Sudan. His Crusader-type sword actually derives from the Crusades. Fifty years ago the Messeria were among the most fanatical followers of the Mahdi (Bulletin No. 3).

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GEOGRAPHIC SCHOOL BULLETIN

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Oil Resources Play Key Role in Drama of Mid-East States

COUNTRIES of the Near and Middle East, where postwar Aladdins have rubbed oil lamps and found magically rich deposits, possess an estimated 40-odd per cent of the world's known petroleum wealth. Observers have pointed out that this oil pool is a reason for the area's recurrent cropping up in world affairs.

The land involved is relatively small. It lies between the Black and Caspian, the Mediterranean and Arabian seas. Leading producers in this "golden triangle of oil" are the Soviet Union, Iran, Iraq, and Saudi Arabia, the last linked in operations with the adjoining island of Bahrein (map, next page). Iran recently has stated that it regards Bahrein, British-protected since 1892, as an integral part of its territory.

Russian Output Largest in Area; Second in World

Important but smaller supplies are obtained from Egypt, and from the little Arab sheikdom of Kuwait near the head of the Persian Gulf.

The Soviet Union, largest producer of the area, is the second-largest petroleum source in the world, ranking after the United States. Nearly all its output has long come from the rich fields of the Caucasus, between the Black and Caspian seas.

Some of these fields were put out of commission during the German invasion. However, the most important operations, near Baku on the Caspian Sea, were not reached or seriously damaged by the Nazis. Even before war ended, Russian production was on the increase. From 216,866,000 barrels in 1939, the figure had risen in 1944 to 275,000,000 barrels.

Among other nations of the golden triangle, Iran—subject of United Nations controversy—is far in the lead at present. Its estimated 1945 output was about 127,000,000 barrels. All this "black gold" came from the southwestern section, where the British-dominated Anglo-Iranian Oil Company holds the concession.

The Soviet Union has had no concession in its neighboring oil countries. A recent agreement, however, permits Russian development of northern Iran's oil.

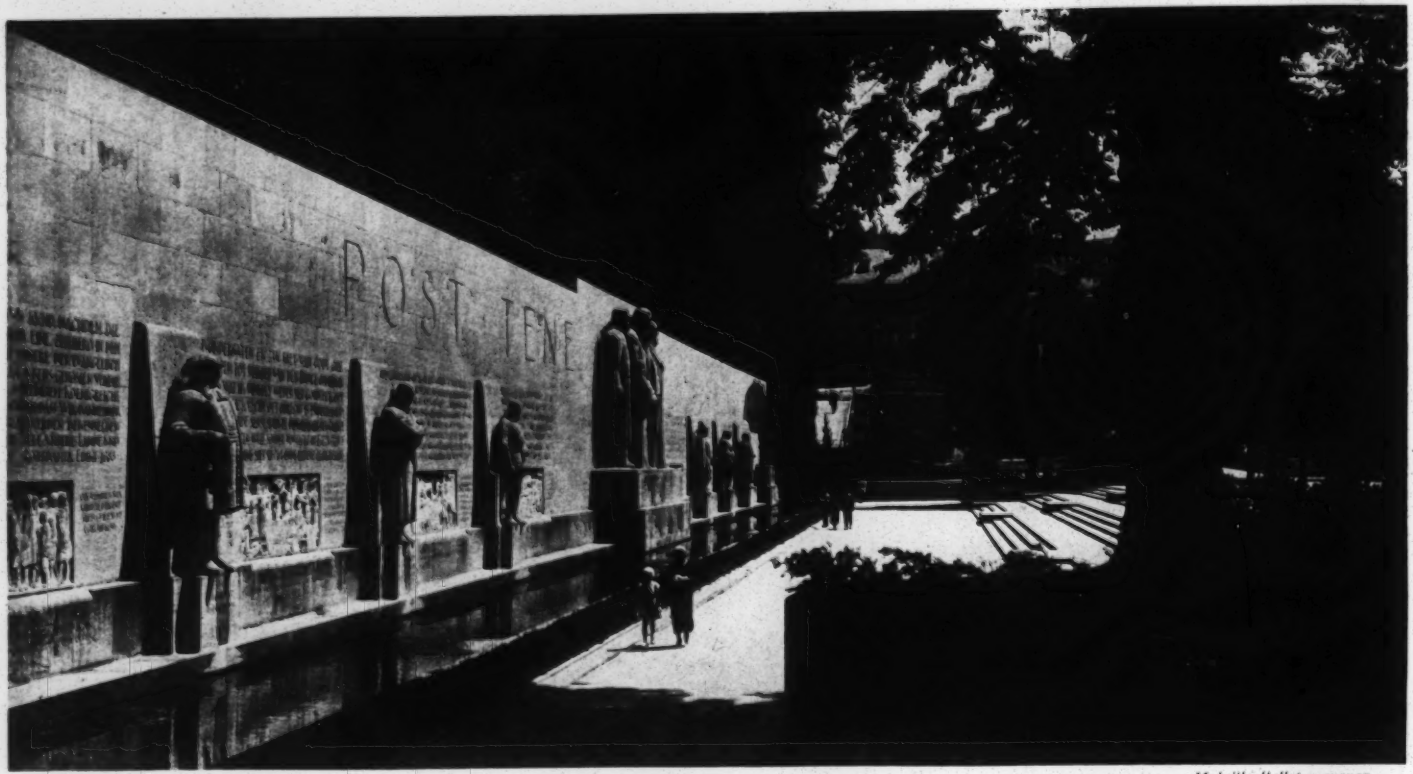
In 1944, the Russians had indicated a desire to participate in Iranian oil concessions, at a time when British and American concerns were also taking up the question of further development. All action on this program was postponed until after the war and the withdrawal of foreign troops occupying the country.

Reserves Are Fabulous, Even When Viewed Conservatively

Iraq followed Iran in the region's petroleum production for 1945, with an estimated 35,000,000 barrels. Saudi Arabia and Bahrein Island together accounted for some 25,000,000 barrels; Egypt, nearly 9,000,000. Kuwait contributed more than 1,000,000 barrels.

Although huge in aggregate, the current oil output of the Near and Middle East is still less than one-fifth that of the entire world. It is in the reserves that the figure of 40-odd per cent of the whole has been reached by oil experts. Many regard this as an extremely conservative estimate for fabulous oil resources which may lie below the barely scratched sands.

Small Kuwait, for example, possesses proved and indicated crude-oil reserves believed to surpass those of the present big producer, Iran. Another rich, though smaller, source is found to the south in Qatar peninsula, where production is scheduled soon. From Egypt to the Caucasus, extensive explorations, drillings,



Melville Bell Grosvenor

AN AMERICAN COLONIST—ROGER WILLIAMS—STANDS AMONG THE RELIGIOUS GREAT ON GENEVA'S REFORMATION MONUMENT

Across Geneva's Promenade des Bastions, the gleaming wall of the Reformation Monument faces the University founded by the great Protestant leader, John Calvin. His statue, in high relief, stands in the center group. At its left, with Cromwell and the Hungarian Bocskay, the stone figure of Rhode Island's Roger Williams is reflected in the narrow moat. Built with contributions from Protestant churches, the 100-yard-long wall is a memorial to great religious leaders who, in the 16th century, made Geneva a sanctuary for persecuted Protestants. At the far end of the wall rises the 19th century Palais Eynard, part of the Natural History Museum (Bulletin No. 2).

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The Hague and Geneva Noted as International Meeting Places

THE Hague ('s Gravenhage), seat of the Netherlands government, and Geneva (Genève), beautiful Swiss city, both long noted as international meeting places, have recently attracted world attention. At The Hague, the United Nations' International Court of Justice has started its sessions. Geneva has witnessed the last session of the League of Nations.

The Hague is often called the birthplace of modern international law. The basic study of the subject, *The Rights of War and Peace,* by Hugo Grotius, was written largely in the Netherlands city in the 17th century. Grotius was the first to hold that nations were bound by moral law. He justified war only to punish criminal nations.

First Hague Peace Conference Was Called by Russia

During the 19th century The Hague came into prominence as a world conference center through such meetings as the International Statistical Congress, International Congress of Diplomatic History, and the Institute of International Law.

Outstanding were the Hague Peace Conferences. The first meeting, held in 1899 in the "House in the Wood" (illustration, next page), was at the invitation of the Czar of Russia. A second gathering took place in 1907. The conferences adopted programs for the peaceful settlements of international disputes, restricting types of munitions, and expressing the rights of neutral powers. A Permanent Court of Arbitration was also organized. To house the court, a Peace Palace was built. This structure is the home of the new International Court of Justice.

Completed in 1913, the brick and stone Peace Palace has a tower 260 feet high and a tall, sloping roof. Its library of 50,000 volumes became a mecca for law students. The building acquired additional international character through contributions of building materials from many countries. Works of art adorning the halls and walls were also gifts from various nations.

At the heart of The Hague is the Binnenhof, home of the Netherlands Parliament. In this group of medieval-appearing buildings the peace conference of 1907 was held prior to construction of the Peace Palace on the western outskirts of the city.

Now Empty League Palace Once Quartered 850 Workers

Unlike the Peace Palace, the palace of the League of Nations, in Geneva, Switzerland, soon may have to hang out a "for rent" sign. Completed only 10 years ago, it was erected at a cost of about ten million dollars and required seven years to build. The United Nations has announced that some specialized agency may be housed in it after the defunct League moves out. Choice of the United States as permanent headquarters of UN ruled out Geneva as the United Nations' capital.

At the height of the League's activities, the palace's 700 rooms housed a personnel of about 850. The rambling stone and marble palace roughly forms a squared "S" and it ranges from three to six stories in height. The wing containing the library was constructed and equipped by a $2,000,000 gift from John D. Rockefeller, Jr.

Like the Peace Palace at The Hague, the League headquarters presented an international aspect through the contributions of many countries of works of art, tapestries, and other interior decorations.

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and new building projects are reported under way.

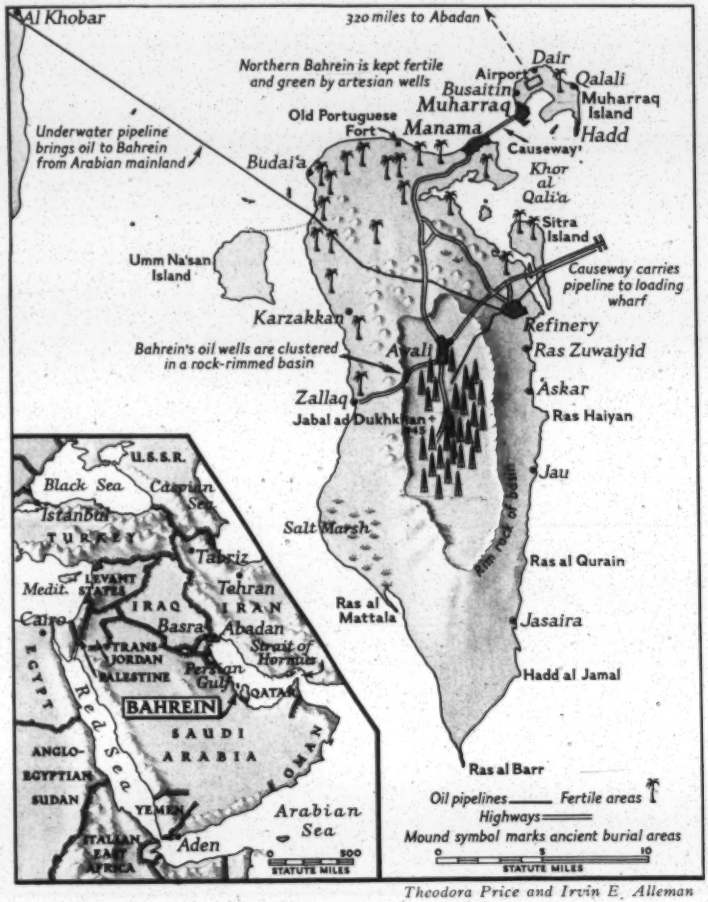
Already the lure of oil riches has resulted in striking changes in these Eastern lands of deserts and dates, of nomads, camels, and minarets. Modern refineries have risen. Pipelines streak hundreds of miles on their way to sea. Settlements bloom in former wildernesses, equipped with air conditioning, housing units, hospitals, and schools.

Also, the manners and speech of oil men from Texas, California, England, and the Netherlands are bringing new accents to the ancient crossroads between Europe, Asia, and Africa.

Except in the Soviet Union, the development of the mid-East's petroleum wealth is in the hands of outsiders—British, American, French, and Dutch.

Ownership of the operating companies is extraordinarily complex, with further complications in problems of international concessions and interlocking activities in various countries. The British government is the majority shareholder in the Anglo-Iranian Oil Company, for example, which also owns a part of other companies in other lands.

United States firms, through the Arabian American Oil Company, hold a concession for nearly all the oil of the independent kingdom of Saudi Arabia, together with neighboring Bahrein Island.



Theodora Price and Irvin E. Alleman

BAHREIN, MID-EAST OIL CENTER, PRODUCES FOR AMERICA

Note: Oil fields of the Middle East may be located on the National Geographic Society's Map of Europe and the Near East. A price list of maps may be obtained from the Society's headquarters, Washington 6, D. C.

See also "Bahrein: Port of Pearls and Petroleum," in the *National Geographic Magazine*, February, 1946; "Guest in Saudi Arabia," October, 1945; "Today's World Turns on Oil," June, 1941; "Forty Years Among the Arabs," September, 1942*; and "Change Comes to Bible Lands," December, 1938*. (*Issues marked with an asterisk are included in a special list of magazines available to teachers in packets of ten for $1.00.*)

Bulletin No. 1, May 6, 1946

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Fate of the Anglo-Egyptian Sudan Depends on Treaty Revision

DISCUSSION among delegates from England, Egypt, and the Anglo-Egyptian Sudan may lead to treaty revisions affecting the future political status of that huge chunk of Africa up the Nile from Egypt. Since the end of the war Egyptians have clamored for unification of the Nile under the Cairo government.

The Anglo-Egyptian Sudan, as its name implies, is jointly ruled by Great Britain and Egypt. This joint rule went into effect in 1899, after the British had helped put down a prolonged native revolt against outside authority. Since then, the real control of the country has been in British hands. Britain regards the Sudan as the northern keystone to its extensive African holdings. About 1,400 miles of the vital Cape-Cairo route lies within it.

Revolt of the Mahdi Led to "Chinese" Gordon's Loss of Khartoum

Three times as large as Egypt, and almost 20 times the size of England, the Anglo-Egyptian Sudan is a brown semi-arid waste striped down the center with the green ribbon of the Nile Valley. It has a long Red Sea coast (map, Bulletin No. 1) and reaches south almost to the mountain and lake country of central Africa. Independent Ethiopia and colonies of France, Belgium, and Italy are its neighbors.

A large segment of the six and one-half million inhabitants is Arabic and devoutly Mohammedan. In 1882 the fanatic followers of the Mahdi revolted. Two years later came the gallant siege-defense of Khartoum by "Chinese" Gordon, British general who was killed two days before a relief column arrived.

For 13 years the anarchic tyranny of Mohammed Ahmed, the Mahdi, desolated the Sudan. Mahdi means "the guided one," supposedly a messenger from Allah put on earth to complete the Prophet Mohammed's work of destroying unbelievers. Many Moslems have assumed this title and its prerogatives. When Mohammed Ahmed died, his son, the Khalifa, took over. By 1898 General Kitchener's forces had completely defeated him.

A young officer with Kitchener was Winston Churchill, who later wrote *River War*, two volumes describing the Sudan campaign and his dramatic experiences fighting the "dervishes" at Omdurman.

Khartoum, the capital, and Omdurman, the largest city, are situated near one another at the confluence of the Blue Nile and the White Nile. Kitchener redesigned Khartoum, a city of palm groves and flower gardens, as a model of colonial building. It has handsome government structures, clubs and homes, and wide paved streets fanning out from the center. Contrasting with the capital's modernity and marks of foreign influence, Omdurman is almost completely a native city.

The South Is Fertile and Spotted with Forests

Aside from a few urban centers much of the Anglo-Egyptian Sudan is still in primitive stages of development. Huge sections are nearly empty wastelands, including the Libian Desert in the north and west, and the Nubian Desert stretching eastward toward the Red Sea.

Low scrub country on either side of the Nile gives way in the south to a more fertile and, in spots, heavily forested highland region. To the southeast, particularly, rise high mountain ranges. Wild animals abound—the hippopotamus, ele-

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The palace is situated in Ariana Park, about five miles north of the center of Genéva on the road to Lausanne. The site overlooks the blue waters of Lake Geneva (Lac Léman). The towering white vastness of Mont Blanc rises above the other mountains that overlook the city.

Geneva's lakeshore location now extends on both sides of the Rhône River, but the old walled hilltop city crowned by the cathedral was on the south bank. The city became a bulwark of Protestantism in the 16th century, as the refuge of religious leaders who produced the Geneva Bible. These men—Calvin, Knox, Farel, de Bèze, and others—are commemorated in a sculptured wall (illustration, inside cover) whose scenes include the landing of the Mayflower Pilgrims.

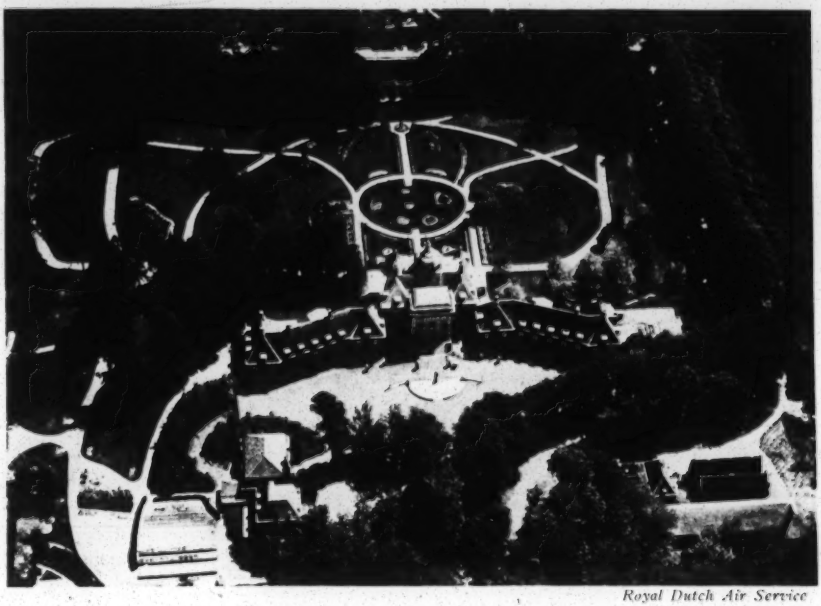
The growing city reclaimed the riverbank and lakeshore for its business district, the Lower Town. It then crossed the Rhône to develop a modern city joined by eight bridges with the narrow, crooked streets and sunless ravines of the historic Upper Town.

Organization at Geneva of the Red Cross, in 1863, gave the city world prominence. Before World War I, Geneva was headquarters for more than 75 international societies.

Note: Geneva and The Hague are shown on the Society's Map of Central Europe and the Mediterranean.

See also "Lake Geneva: Cradle of Conferences," in the *National Geographic Magazine* for December, 1937; and "Odd Pages from the Annals of the Tulip," September, 1933; and, in the GEOGRAPHIC SCHOOL BULLETINS, December 18, 1944, see "Yanks in Europe: 3. The Netherlands."

Bulletin No. 2, May 6, 1946



Royal Dutch Air Service

QUEEN WILHELMINA AGAIN LIVES IN THE HAGUE'S "HOUSE IN THE WOOD"

Home of Netherlands royalty since 1645, the *Huis ten Bosch* had been unoccupied since the present queen came back in September, 1945, to her war-ravaged land. Since her return, Queen Wilhelmina has lived in a small three-family brick house on the "wrong side of the tracks" in The Hague. A councillor persuaded the economy-minded queen to move back to the palace when he pointed out that she was depriving three working families of good homes. The central part of the structure was built for the widow of Prince Frederick Henry of Orange, a leader in the liberation of the Netherlands from Spain. The Orange Room, dedicated to him, is the palace's show-piece. In it was held the First International Peace Conference, in 1899.

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Modest Menhaden Leads More Famous Fish in Atlantic Commerce

MOVING northward from its winter haven off Florida's Atlantic coast, at the edge of the Gulf Stream, is a fish called the menhaden. Though it is little known except along the Atlantic and Gulf coasts of the United States, the menhaden is regarded by some fisheries experts as the most important of all east-coast fish.

Year after year the menhaden catch weighs triple and quadruple that of its nearest competitors in the same waters—the haddock, cod, and shrimp. Only the pilchard of the Pacific adds up to more poundage in American fisheries statistics than the menhaden.

A Fish That Follows the Sun

Scientists catalog the menhaden as *Brevoortia tyrannus*. Among the best known of its score or more of everyday aliases are fatback (North Carolina), mossbunker (New York), and pogy (New England). Averaging just under a foot in length and a pound in weight when full grown, the menhaden moves close to the surface along ocean and bay shores. It travels in crowded schools of 100,000 to a million or more.

From its winter spawning grounds in the south it works northward to Maine waters as the ocean temperature climbs above 50 degrees Fahrenheit. Thus, Florida waters hold menhaden virtually all the year; the Chesapeake region is their host from early April to December; New Jersey sees them from May to Thanksgiving; Maine, from early June to late September.

Using the hundreds of threadlike strainers in its gills the menhaden filters the surface water and catches tiny plants and crustaceans for food. This "chowder," known as plankton, which geologists say was one of the sources of petroleum millions of years ago, is converted by the menhaden into oily flesh.

Fleets of tuglike wooden vessels averaging 100 feet long are employed in menhaden fishing. They are based at 25 processing factories which operate seasonally along the coast from Louisiana to New York. During the fishing operations, when a school of menhaden is spotted, two seine boats, each carrying one end of a long sturdy net, are launched from the stern of a mother ship. The net is drawn around the school and closed at the bottom. A single operation may catch 100,000 menhaden (illustration, next page). A day's catch may run to half a million fish or more.

The Oil Helps Produce Floor Covering and Foot Covering

Nearly a billion menhaden are caught annually in this manner and delivered to the factories. The largest of these centers are at Fernandina at the northernmost tip of Florida's Atlantic coast; at Morehead City and Beaufort, North Carolina; at Reedville, Virginia; and at Lewes, Delaware.

Delivered on an endless belt from the ship's hold to a processing plant, the fish are first steam-cooked, then pressed to extract the oil. A billion menhaden will yield more than six million gallons of oil. In addition, they will produce 70,000 tons or more of nitrate-rich fertilizer and meal for feeding poultry and livestock. The oil is used in steel-plating processes, leather currying, linoleum making, and as a substitute for linseed oil generally.

The names pogy and menhaden come from a Narragansett Indian word,

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phant, crocodile, giraffe, antelope, and many monkeys and snakes. In some sections of the Sudan travel is restricted because of the possibility of sleeping sickness carried by the tsetse fly.

Unevenly spread over the land, following the essential water supply, are people of different races, religions, and customs. The Moslem Arabs are found chiefly in the north, while pagan Negroes live mostly in the south—with various mixtures in between. For the most part rural Sudanese lead simple agricultural, nomadic, or semi-nomadic lives. A few subsistence crops are planted during summer rains and kept alive by irrigation. Cattle, camels (illustration, below), horses, sheep, and goats are raised.

Cotton is the leading cultivated crop of the Sudan, where production has been much increased by improved varieties and by extensive irrigation. This country is the world's major source of gum arabic, a plant resin used in medicines, confectionery, inks, and adhesives. Ivory, salt, and gold are other important products.

British and Egyptian flags fly together in the Anglo-Egyptian Sudan. Administration is in the hands of a governor general appointed by Egypt "with the assent" of Great Britain. Actually all governors general and provincial governors have been British. Laws are made by proclamation. Native sheiks, tribal chiefs (illustration, cover), and village councils carry out local government in accordance with old customs. A recent trend has allowed more Sudanese participation in the country's government.

The Anglo-Egyptian Treaty of 1936, in which changes are now being discussed, reaffirmed the terms of the 1899 joint-rule agreement. It was to have remained in effect until 1956.

Note: The Anglo-Egyptian Sudan is shown on the Society's Map of Africa.

For further information, see "Three-Wheeling Through Africa," in the *National Geographic Magazine* for January, 1934; and "Two Fighting Tribes of the Sudan," October, 1929*; and in the GEOGRAPHIC SCHOOL BULLETINS, January 28, 1946, "The Nile, Source of Egypt's Fertility, Also to Supply Power."

Bulletin No. 3, May 6, 1946.

James C. Wilson

CAMELS BROKEN TO HARNESS PULL A LOAD OF ALFALFA TO KHARTOUM

In the northeast part of Anglo-Egyptian Sudan the Amarar and other "camel tribes" breed racing camels. The "Fuzzy-Wuzzies" of Kipling fame rode swiftly to battle on these mounts, but did their actual fighting on the ground.

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Geo-Graphic Brevities

COSMIC RAY RESEARCH LISTED ON NATIONAL GEOGRAPHIC SOCIETY CALENDAR

A SERIES of flights by a specially equipped B-29 Army plane will measure the intensity of cosmic rays at various altitudes and latitudes, it was recently announced by Dr. Gilbert Grosvenor, President of the National Geographic Society. The flights will continue, in the postwar era, scientific research in a field the Society was probing before the war.

Cooperating in the project are the Army Air Forces and the Bartol Research Foundation of the Franklin Institute at Philadelphia. The latter organization furnished apparatus for cosmic ray study during the 1935 National Geographic Society-Army Air Corps expedition in which *Explorer II*, the world's largest balloon, set a still-standing altitude record of 72,395 feet.

Starting late this month, the B-29 will make four round trips beween a point near the northern border of the United States and the magnetic equator. One flight will be at 35,000 feet, and the others will be at lower altitudes—25,000, 15,000, and 5,000 feet.

The studies are designed to obtain better experimental evidence of the nature of cosmic rays, particles of great energy which originate outside the earth's atmosphere and constantly bombard the earth. The plane will be equipped with Geiger counter "telescopes" so arranged as to record cosmic ray activity in the vertical direction.

Specifically, scientists conducting the tests want to measure the intensity of mesotrons, particles into which cosmic rays are thought to split after entering the earth's atmosphere. Mesotrons are believed to represent the end products of an atomic disintegration.

* * * * *

THE MATCH, RELATIVELY NEW, CLOSED STONE-AGE FIRE-MAKING ERA

BREAKUP of the world match cartel, and exciting prophecies about a match which will strike "thousands of times" stresses the convenience and necessity of the match in modern life and recalls that its invention, less than 125 years ago, marked the first decided departure from Stone-age fire making. Like many other inventions, the match was a gradual development, but its discovery is generally credited to an English chemist named John Walker.

The splint of today is far different from Walker's 1827 model. Its fire-power lay in a head of chlorate of potash and sulphide of antimony. It ignited (sometimes) when rubbed between folded sandpaper. Matches of this style were known as "Lucifers"; and with a change in their chemical mixture, "Congreves." The odor of early matches was soon tamed in the "stinkless parlor match" which used stearic acid instead of sulphur.

At first matches were made by hand. A box of fifty sold in London for about twenty-five cents. Machine methods were gradually introduced as the demand for matches increased and by 1875 Swedish manufacturers had made a machine so efficient that it is still used. Since the turn of the century, practically all matches have been made by machinery.

The modern machine takes the wood blocks of pine or aspen and turns out matches boxed for use. Stuck in endless chains of square metal plates, the wood

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poghaden, which means fertilizer. Indians taught the colonists the trick of planting the fish with their corn seed and of spreading them whole on plowed land to enrich the soil.

Though generally not caught for eating, the menhaden manages to reach the dinner table in various roles. The young, like the young of the herring, when canned in vegetable oil make an acceptable substitute for the genuine sardine, which is the young of the pilchard. Considerable quantities of canned menhaden were shipped abroad during the war as part of the Lend-Lease food program. Menhaden roe, canned for human consumption, has been well received. So far, this has been done only on a small scale.

The menhaden earns its top rating not only because of its heavy poundage and the extensive commercial value of its oil. It also serves in the sea as food for cod, mackerel, bluefish, swordfish, and many other popular dinner-table fish of the Atlantic.

Note: Fishing grounds where menhaden are caught may be located on the Society's Map of the Atlantic Ocean.

For additional information about the menhaden catch, see "Tarheelia on Parade," in the *National Geographic Magzine* for August, 1941.

Bulletin No. 4, May 6, 1946

Roy Eubanks

TRAPPED IN A TRIANGLE, MENHADEN HEAD FOR A NORTH CAROLINA FACTORY

Fenced in by two purse boats and the mother ship of the menhaden fleet, tons of aquatic oil-producers thrash the water to foam in efforts to escape the power-operated dip loading them into the larger ship's hold. Apparently discrediting Kipling's statement that "he travels the fastest who travels alone," menhaden invariably move in enormous schools. They hurry north from Louisiana to Maine for the summer, in crowds so dense as to be visible to the look-out in the crow's nest on the mother ship. Caught in huge purse nets, they are scooped up into the big ship and taken to the factory to be processed into oil and fish meal.

splints are dipped in the various solutions and blown dry. A large western pine tree will provide splints for ten million matches.

The safety match was invented about 1855—by accident, according to one story. When the manufacturer found he had made a large lot of matches that would not strike, he located the missing element and put it in the striking surface of the box. Both Sweden and Erie, Pennsylvania, claim the invention.

With the world-wide demand for matches, the number of factories increased rapidly. Hundreds of small plants were established in the United States and Europe, particularly Sweden. Japan took the lead in Asia. Peru had factories.

The infant industry soon grew to giant proportions. Because of the competition that developed, the match industry early created national trusts, and then an international cartel so wealthy that it could acquire exclusive franchises through loans of millions of dollars to governments.

Producing sixty thousand matches a second, in its domestic and foreign factories, the Swedish combine of Ivar Kreuger at one time controlled half the total match production, and claimed to be the world's largest business organization.

In normal times the United States was using about 480 billion matches a year. More than two-fifths of the nation's total output was used in the lighting of cigarettes. During the war, the United States armed forces developed matches which would strike after being soaked in water (illustration, below).

Note: For additional information, see "'Jungle Matches' Defy Water, Wear Special-Duty Raincoats," in the GEOGRAPHIC SCHOOL BULLETINS for January 29, 1945.

Bulletin No. 5, May 6, 1946.

U. S. Army Signal Corps

BEFORE STRIKING, REMOVE MATCH FROM GLASS OF WATER!